Real Estate Management System

Software Requirement Specification

Course Name: - System Analysis and Design

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Submitted by: Group 2

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Chapter 1

Introduction

1.1 Purpose

In the digital world, buying and selling homes can also happen through realtor websites. So customers can comfortably search for their apartments through our website. Our purpose is not only to serve the clients but also company staff members. As real estate agents, property managers are having problems communicating with clients, tracking maintenance costs, and collecting payments. So, our purpose is to help them with our system to manage these tasks in a much easier way. And most importantly it will be very effective to avoid embezzlement.

1.2 Scope

The purpose of the Real State Management System is to create a reliable, convenient, and easy-to-use website for people who want to buy or rent apartments. To create this website, we will be using PHP and MySQL databases. There will be a total of three types of users, such as customer, client, and administrator. This website will allow its users to view, compare, rent, and buy the properties listed on the website. There will be a proper registration/login interface for the Owner, User, and Administrator to access the website.

The system will also allow customers and clients to search for apartments according to their preferences. They also have access to their invoice, payment information, and managers' information.

The admin can control the website internally. They can add or update apartment information, client information, and invoices. The admin can also authorize clients and accept or reject any request from any customer.

1.3 Definitions, Acronyms, and Abbreviations

SRS – Systems Requirements Software. This document outlines the requirements that the software must fulfil.

User – any person who uses the program, has to be an adult.

Administrator – a person who has administrative access to advanced settings.

Customer – a person who is eager to buy/rent apartments.

Client – a person who has already rented/bought an apartment, and wants to view invoice.

Login Page – the page that allows the user to login.

HTTPS- Hypertext Transfer Protocol Secure

1.4 References

- Shanta Holding Ltd. (SHL)
- Rangs Properties Limited
- Navana Real Estate (NREL)

1.5 Overview

The remaining sections of this documentation describes the overall descriptions, which includes product perspective and functions, characteristics of users. It also consists of Assumptions, and Constraints. Overall, description is listed in chapter 2. Chapter 3 includes Specific Requirements that consists of Functional and Non-functional requirements, External Interface Requirements, Specific Requirements, Functions, Performance Requirements, Logical Database Requirements, Software system attribute, Diagrams.

CHAPTER 2

The Overall Description

2.1 Product Perspective

2.1.1 System Interfaces

Our System is a web-based application. It can be rendered across all browsers. The files of the system are stored in a server, and the website will be accessed through a domain.

2.1.4 Software Interfaces

This system will be able to run in environments like Windows Operating System, Android & iOS. This system will use IPV4 protocol.

2.1.5 Communications Interfaces

The System will be using HTTP/HTTPS for communication over Internet & Internet communication. Users will contact through SMTP email.

2.1.7 Operations

Customers can search for their desired apartments or their preferred location of buildings. They can also buy/rent a new apartment. Clients can view their invoices and pay their utility bills. The Marketing admin will add or update property information, this includes information of various buildings and the apartments within them. They can also assist customers in their search and their various queries. The Finance-Accounts admin has access to Client and Manager Information. They are also involved in one of the most important tasks of the system that is client authorization.

2.3 User Characteristics

There are 5 types of users in this system. Customer, Client, Marketing Admin, Finance-Accounts Admin, and Manager. Customer and Client are the primary

actors of the system. Marketing Admin, Finance-Accounts Admin, and Manager are the secondary actors of the system.

2.4 Constraints

Due to different types of users present in the system, some constraints are placed on the users. No user will be able to access the core functions of the system without logging in first. Then, each type of user will be able to access parts of the System based on their role. For example, Customers and Clients won't be able to see the personal details of others. Such types of information are only available for admins. All users will have a dashboard. However, dashboards will be different based on user role.

2.8 Apportioning of Requirements

Functional:

- **Search:** Customers will be able to search available apartments.
- **Add Apartment:** Apartment will be added only by Admins.
- **Buy or Rent:** Customers will be able to buy or rent apartment.
- **Authorization:** Clients will be authorized by Company Admin.
- **Create Invoice:** Admin will create monthly invoice for client.
- **View Invoice:** Client will be able to view their monthly invoice.
- **Pay Invoice:** Client will be able to pay invoice.
- **Contact:** Client will be able to contact with Admin.

Non-Functional:

- **Registration:** Customer must complete registration to use this system**.**
- **Login:** Users must log in to access their account.
- **Maintainability:** This system can be modified to correct errors & improve performance.
- **Security:** No random people can login as Admin.
- **Reliability:** This system will ensure that all data is stored in server as well as backed up in cloud.
- **Language:** Bangla & English.

- **Capacity:** There is no restriction on the number of users to be add to the database.
- **Speed:** System will response fast and smoothly.

CHAPTER 3

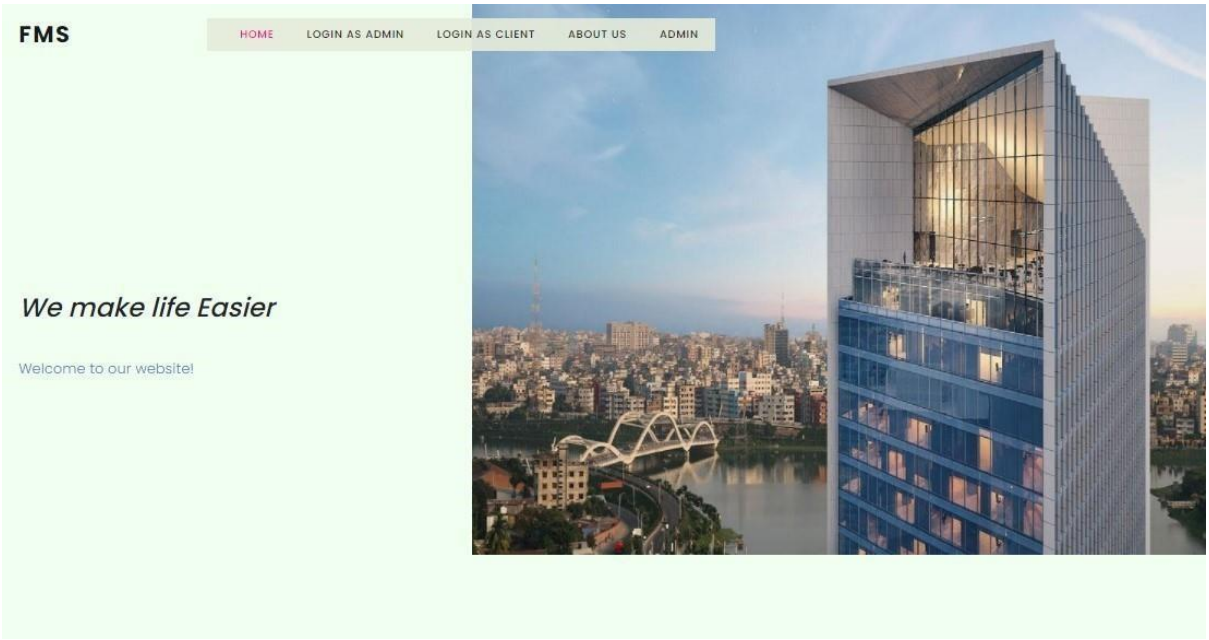
Specific Requirements

3.1 External Interface

3.1.1 User Interface

Homepage:

In navigation bar there will be home, login as Admin, login as client, About us.

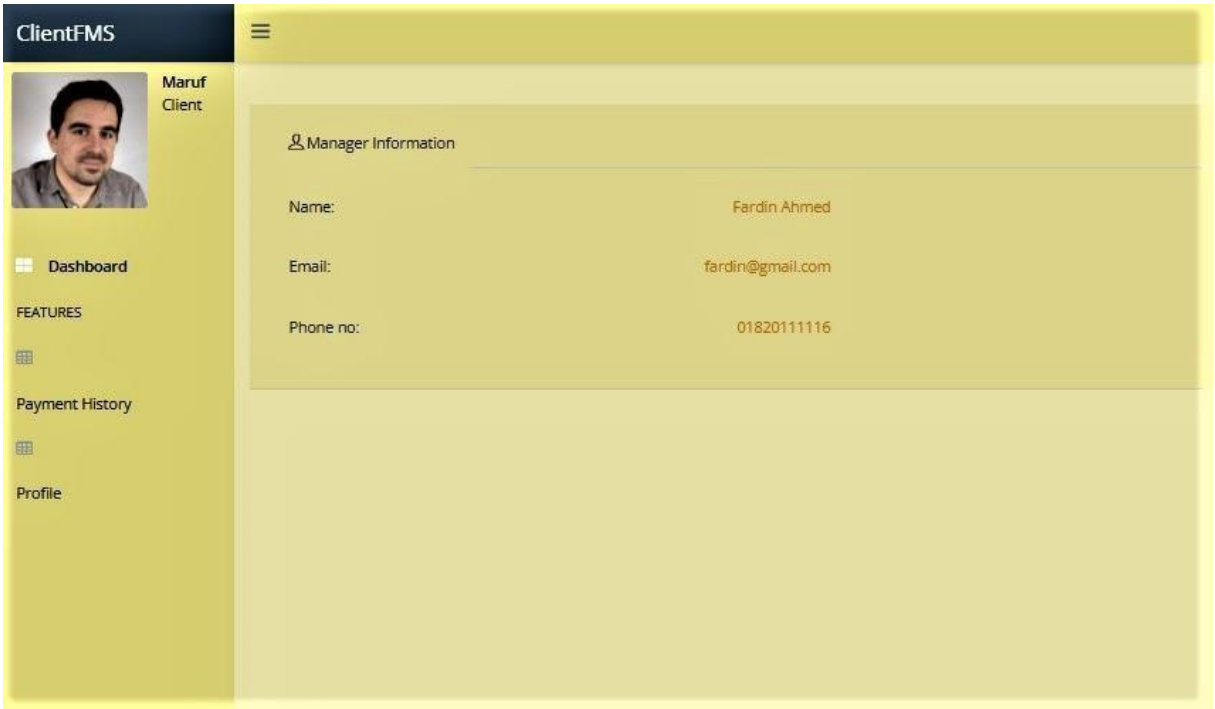


Login page:

In login page customer will provide email & password.

Client Dashboard:

From client dashboard, client will able to see manager information. Where they will contact with their manager, if they have any complain or any issues.

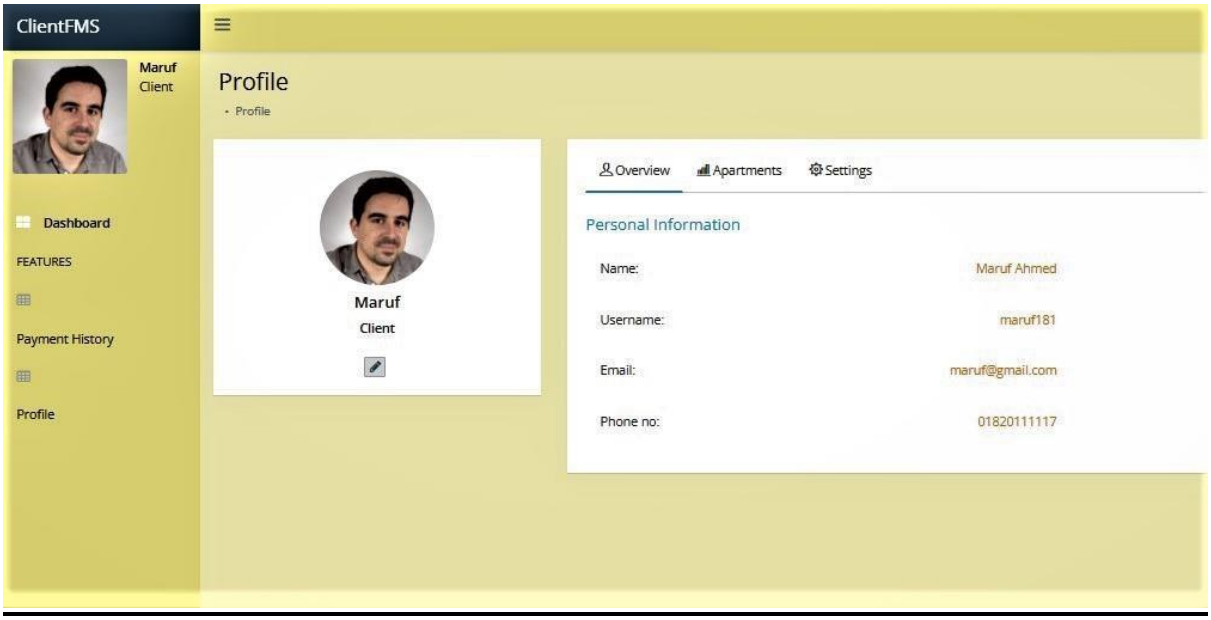


View Invoice Page:

From this page, client will see their invoice list.

Client Profile:

Client can update their profile anytime.



Search Apartment:

Customer will be able to find their desired apartments from this page. Then, they can view the whole details of apartments from the description box. From here, they can make request to buy or rent their desired apartment.

Contact:

Customer will contact company admin for buy/rent apartment through email or direct call.

3.3 Performance Requirements

The system will be interactive and will respond immediately to each request. The communication between the server database and the system will be quick, having a short delay. All types of information will be encrypted and then transmitted to the server database. This ensures that the transfer of information is reliable and secure.

The User Interface will be pleasing to the eye and easy to use. Users will be able to navigate from one page to another quickly and without any delays. The hardware cost of the system is less since the database server will be stored on the cloud. The cloud server will be able to store thousands of database records, hence reducing the costs of maintaining any kind of external hardware database/storage. The system shall run on both MAC Os (Os10. or above) and Windows (7 or above). The system must have 4GB of Ram memory and Internet access.

3.1.3 Software Interface:

For the front-end of the system, we will use HTML5, CSS3, JavaScript programming language, and a CSS framework called Bootstrap. We will use PHP and a framework called Laravel in our back-end. For our database, we will use MySQL which is a Relational Database. This system can work on most common operating systems like mac OS, Linux, and Windows. This system will use IPV4 protocol.

3.1.4 Communication Interface

The SMTP protocol is used for sending emails to Clients and Customers. These emails can be payment confirmation, forgotten passwords, customer support, etc. The emails are used to establish communication between the Users and Admins.

The HTTP protocol is used to establish communication between all the end-users with the server of the system. Through this protocol, end-users will be able to access the website.

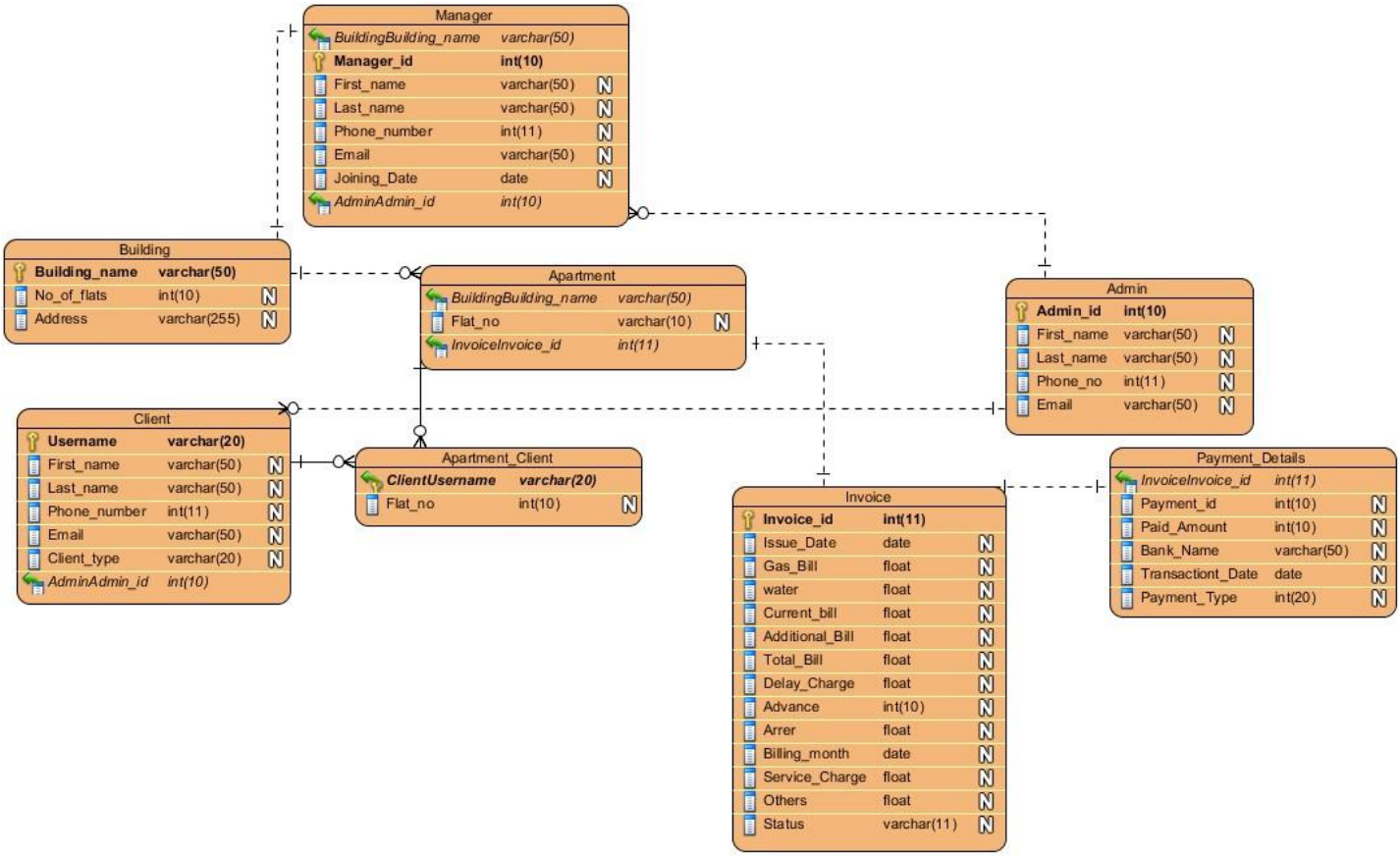
3.2 Function

In this system, anyone can register to the website as a customer. When the registration process will be done, the information will be stored in the system database. Then customers will log in to the system through the verification process. Then a homepage will appear and from there, the customer will search for apartments that will be listed by the Marketing Admin.

The customer will view all the details of an apartment in the description box. In the description form, there will be an option for sale or rent. Customers will communicate with admins through email and arrange their appointment if the customer is interested in buying or renting the apartments. If the buy or sell process is done & after proper negotiation, the marketing admin will update the customer information as a client into the system database.

Finance-Admin will log in to the system & will be able to enter data of the property and their client's information. Admin will enter utility bill & invoice will be created dynamically.
The client will log in to their account & they will view the previous and current invoice list. Then they will pay according to their monthly invoice. After payment is done, a successful message will appear. Lastly, Admin & user can log out anytime.

3.4 Logical Database Requirements



3.6 Logical Software System Attribute

3.6.1 Reliability

Since all the files of the system will be on a cloud server, the system will not crash if any file is invalid or gets deleted. This is because the data files will also be stored on a non-volatile storage device such as a hard drive. The hard drive will always be in sync with the cloud server so that the data files can be retained easily without the system crashing. If an error occurs in the data file, the system will display an error message.

3.6.2 Availability

In the cloud server, where the data files are stored crashes, the files of the user can still be recovered and the system will allow the user to restart the application after a crash. The user will be able to continue from where he/she left off after the system has been restarted and continue using the system. The system will have an average run time of 30 to 45 min per session, although this depends on the user. The user may use the system for longer periods.

3.6.3 Security

The system will use the cloud's default security since the system is web-based. Some of the cloud's security used by the system are: - enable data recovery in case of data loss, protect storage and networks against malicious data theft, deter human error or negligence that causes data leaks, reduce the impact of any data or system compromise, etc. The System will also be using HTTPS for encryption during data transfer so that hackers cannot read or modify data if they somehow get access to it. HTTPS also increases the speed of data transfer through encryption and reducing the size of data.

3.6.4 Maintainability

The administrator will be able to update the system with new data files. All the data files (e.g. the PHP files) will be centrally located within the file structure so that any update will affect all areas where the modified code is called. If any bugs are found in the system, the current files of the system in the cloud server won't be touched. Hence the system will never stop. Corrections will be done on the main raw files (bug fixing), and then the new files will be uploaded to the server. A maintenance break of around 15 to 20 minutes will be called for the files to be updated and to ensure that the system runs smoothly.

3.6.5 Portability

The system will be able to run on multiple operating systems including Microsoft Windows, macOS, Linux, Android, and IOS. The software will be written in a platform-independent programming language for portability, i.e. there will be no platform-specific code. Hence, the data files will be portable on the operating systems mentioned. We will write all the software using PHP. No software needs to be installed by the user.

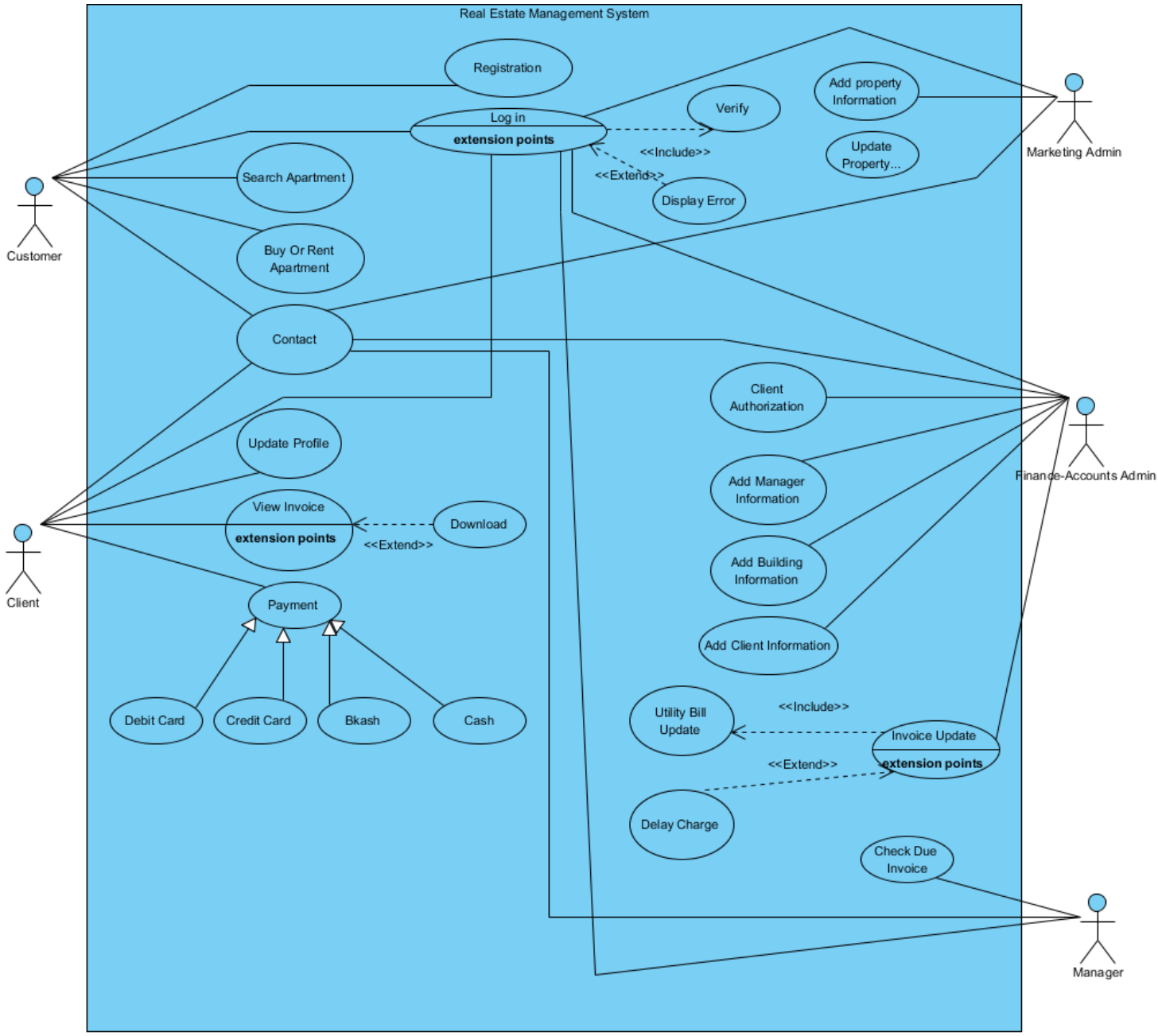
3.7 Organizing the Specific Requirements

3.7.1 Benchmark Analysis

Comparison	Shanta Holding Ltd. (SHL)	Rangs Properties Limited	Navana Real Estate (NREL)	Proposed system (Real Estate Management)
Login	Yes	Yes	Yes	Yes
Registration	Yes	Yes	Yes	Yes
Search Apartment	Yes	Yes	Yes	Yes
Buy or Rent	Yes	Yes	Yes	Yes
Contact	Yes	Yes	Yes	Yes
View Invoice	No	No	No	Yes
Payment	No	No	No	Yes
Rating	Yes	No	Yes	Yes

3.7.8 Diagrams

3.7.8.1 Use Case



3.7.8.2 Use Case Descriptive Form

Use Case 02: Rent or Buy Flat

Primary Actor: Customer

Stakeholders and Interests:

- Customer: Wants to rent or buy a flat.
- Marketing Admin: expects to be contacted by customer for details.

Pre-Condition:

- The customer should be an authorized user.
- Customer should enter correct username and password for logging in.
- Flat details displayed on the website must be authentic and complete, i.e. nothing should be missing.

- Alongside flat details, the details of the building where the flat is must also be mentioned, i.e. parking space, electricity backup, service elevators, etc.

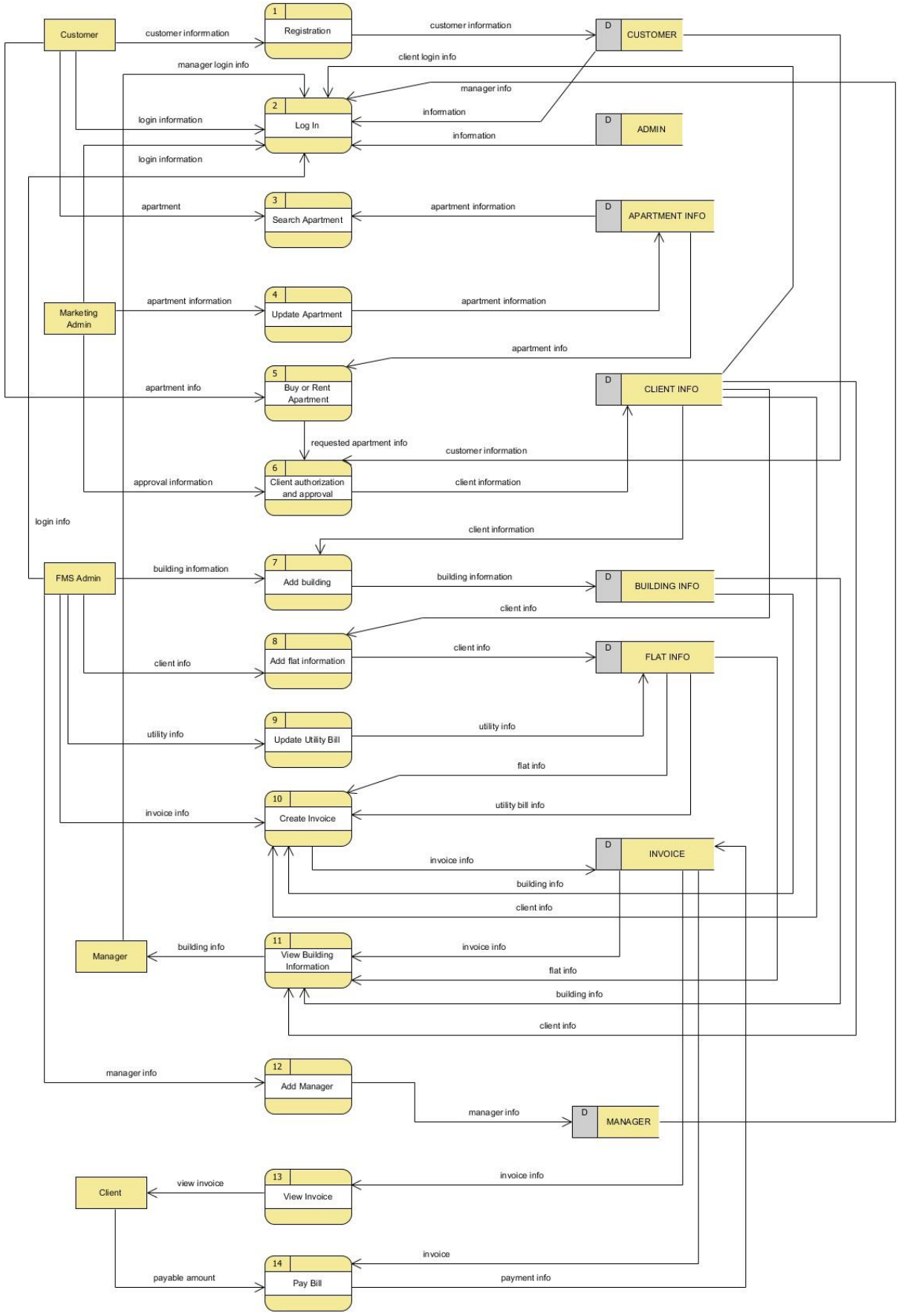
Post Conditions:

- Customer can see various details of flat available in different locations and different buildings.
- In case of queries, customer will be able to contact with admin in various ways, i.e. email or phone number.

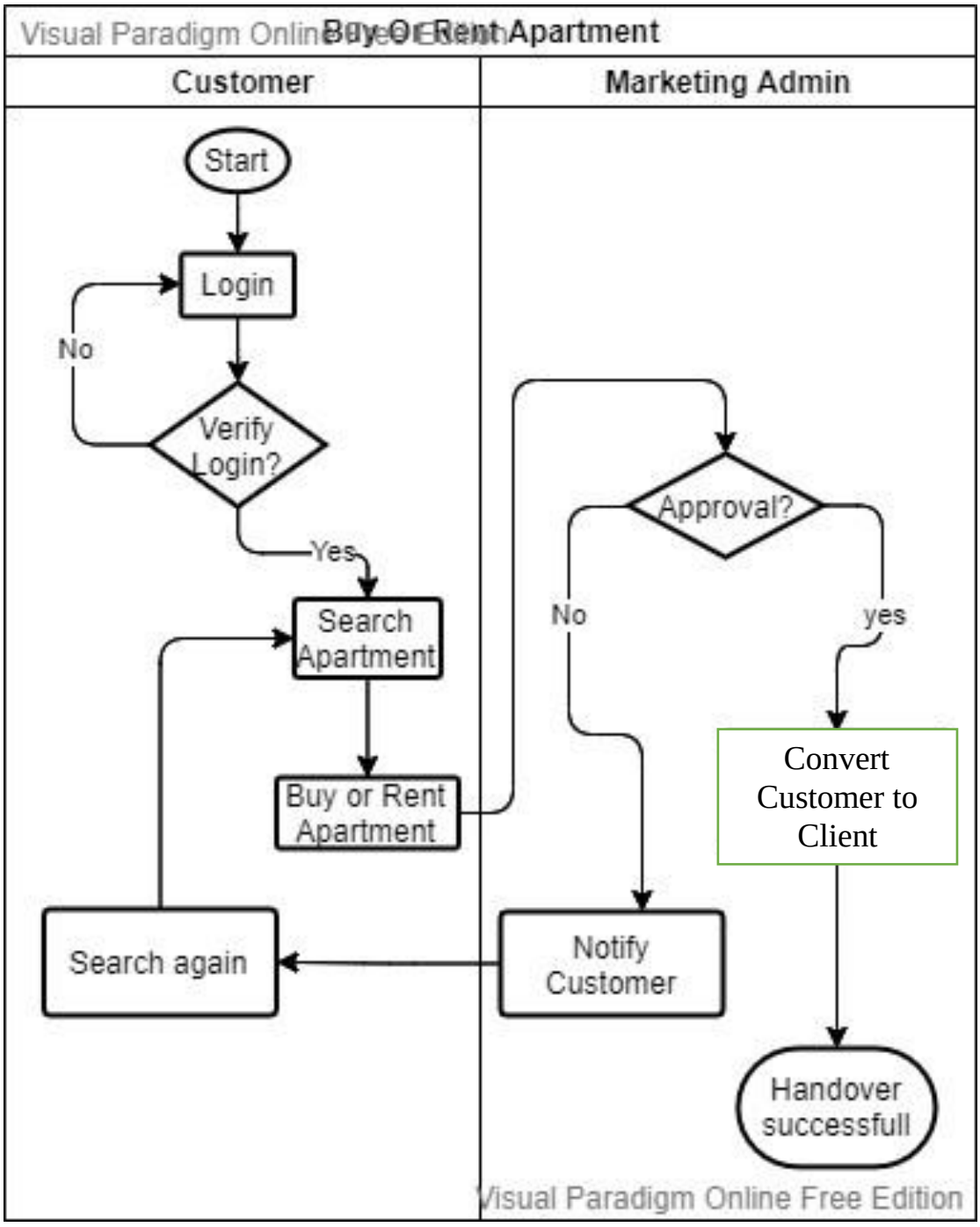
Main Success Scenario:

- Customer navigates to desired location and finds various flat information from home page.
- Customer successfully rents or buys flat.
- Customer is re-directed to checkout/payment page.

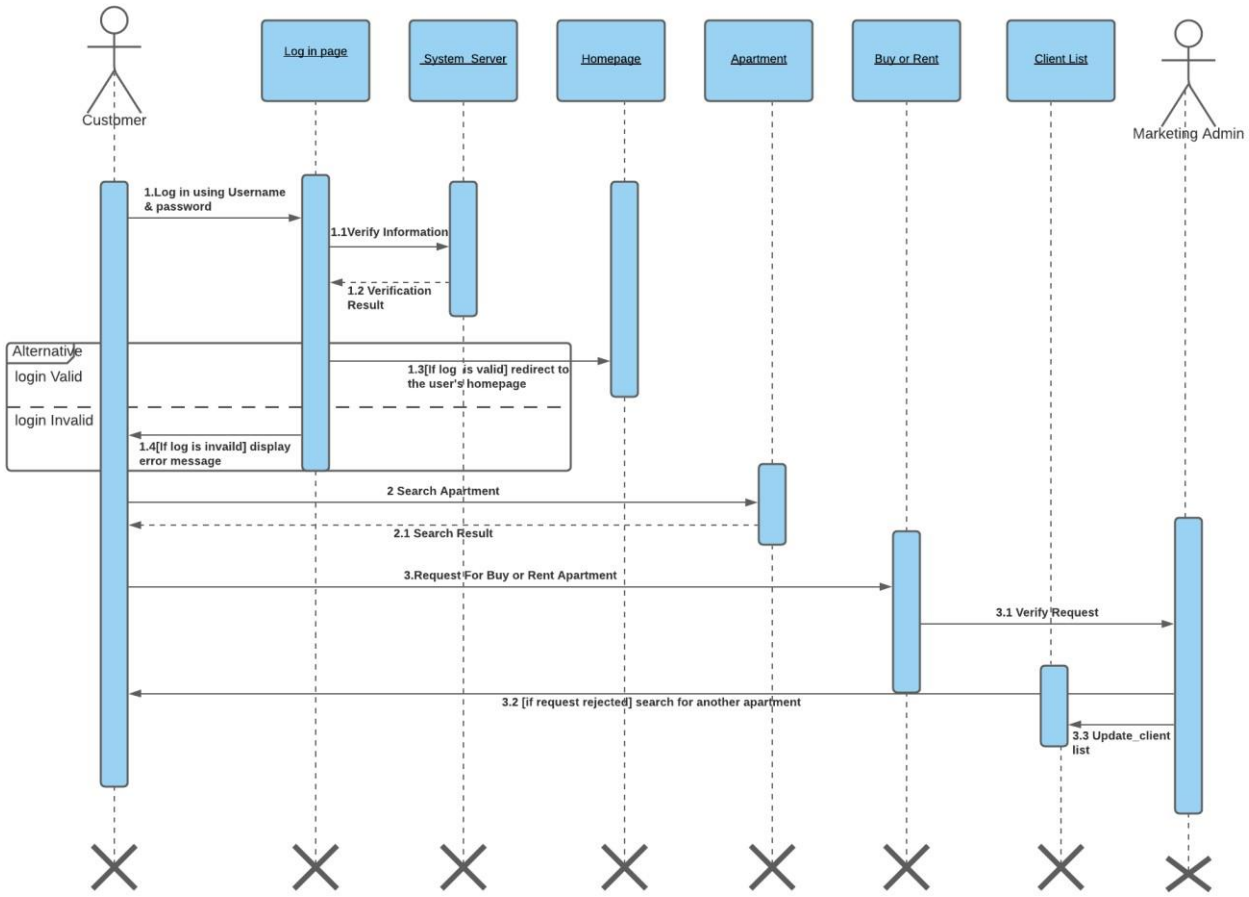
3.7.8.3 Data Flow Diagram

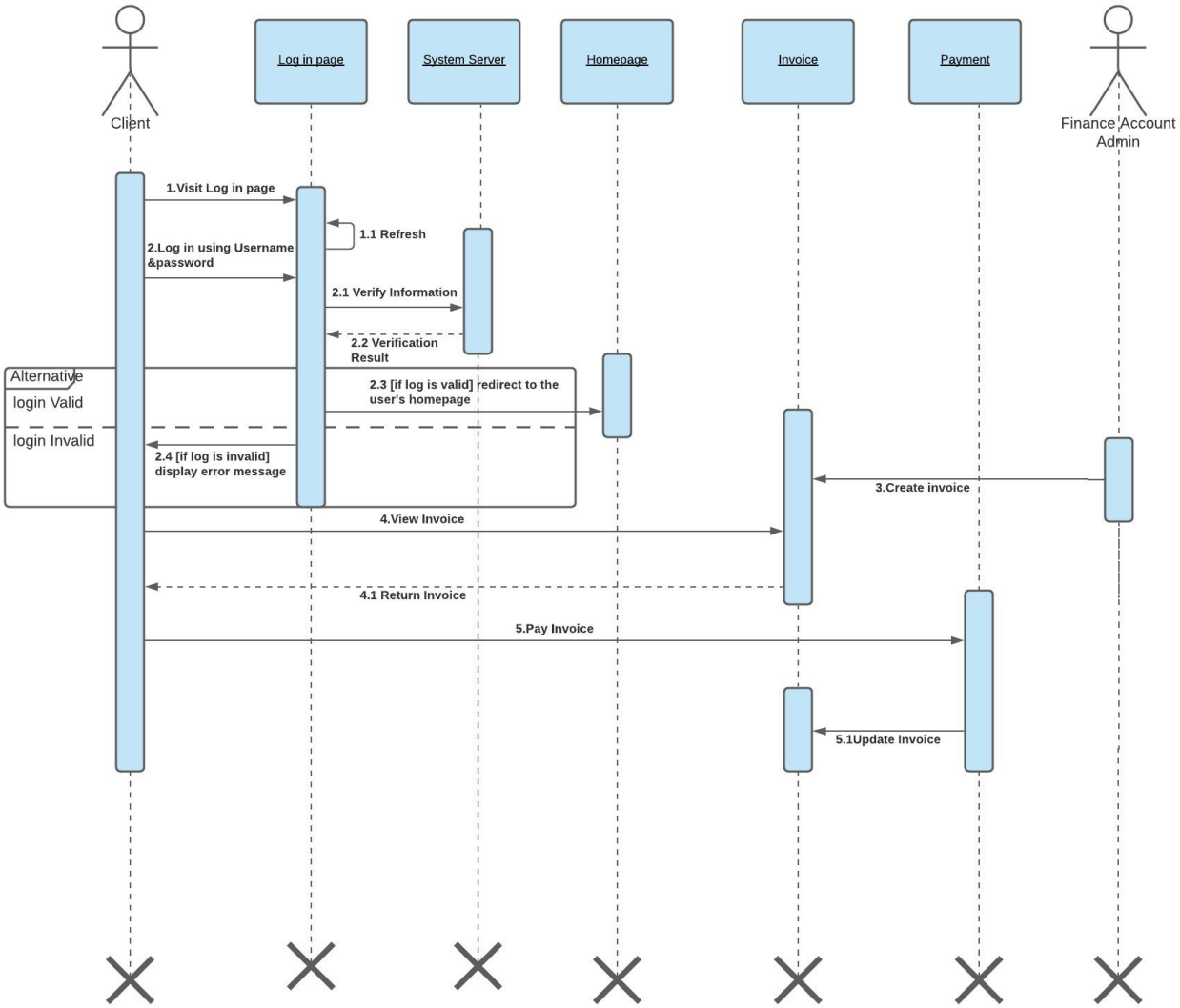


3.7.8.4 Swim lane Diagram



3.7.8.5 Sequence Diagrams




Client
Log in page
System Server
Homepage
Invoice
Payment
Finance Account Admin
1.Visit Log in page
1.1 Refresh
2.Log in using Username &password
2.1 Verify Information
2.2 Verification Result
Alternative
login Valid
login Invalid
2.3 [if log is valid] redirect to the user's homepage
2.4 [if log is invalid] display error message
3.Create invoice
4.View Invoice
4.1 Return Invoice
5.Pay Invoice
5.1Update Invoice